

## Prevalence and associated factors to occupational accidents in the hospital housekeeping

Ceron, Marinez Diniz da Silva; Magnago, Tânia Solange Bosi de Souza; Camponogara, Silviamar; Luz, Emanuelle Mancio Ferreira Da; Beltrame, Marlize Tatsch; Bottino, Larissa Diniz

Veröffentlichungsversion / Published Version  
Zeitschriftenartikel / journal article

### Empfohlene Zitierung / Suggested Citation:

Ceron, M. D. d. S., Magnago, T. S. B. d. S., Camponogara, . S., Luz, E. M. F. D., Beltrame, M. T., & Bottino, L. D. (2015). Prevalence and associated factors to occupational accidents in the hospital housekeeping. *Revista de Pesquisa: Cuidado é Fundamental Online*, 7(4), 3249-3262. <https://doi.org/10.9789/2175-5361.2015.v7i4.3249-3262>

### Nutzungsbedingungen:

Dieser Text wird unter einer CC BY-NC Lizenz (Namensnennung-Nicht-kommerziell) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:  
<https://creativecommons.org/licenses/by-nc/4.0/deed.de>

### Terms of use:

This document is made available under a CC BY-NC Licence (Attribution-NonCommercial). For more Information see:  
<https://creativecommons.org/licenses/by-nc/4.0>

Federal University of Rio de Janeiro State

# Journal of Research Fundamental Care Online

ISSN 2175-5361  
DOI: 10.9789/2175-5361

## RESEARCH

### Prevalência e fatores associados aos acidentes de trabalho no serviço hospitalar de limpeza

Prevalence and associated factors to occupational accidents in the hospital housekeeping

Prevalencia y factores asociados a los accidentes de trabajo en el servicio hospitalario de limpieza

Marinez Diniz da Silva Ceron <sup>1</sup>, Tânia Solange Bosi de Souza Magnago <sup>2</sup>, Silviamar Camponogara <sup>3</sup>,  
Emanuelle Mancio Ferreira Da Luz <sup>4</sup>, Marlize Tatsch Beltrame <sup>5</sup>, Larissa Diniz Bottino <sup>6</sup>

### ABSTRACT

**Objective:** Identify the prevalence and factors associated with the occurrence of accidents at work with hospital housekeeping personnel. **Method:** Cross-sectional study involving 157 workers from a public university hospital of Rio Grande do Sul, Brazil. Data collection occurred in 2013, it was used a form for socio-demographic, labor, habits, health and occupational accidents characterization. **Results:** In the last worked year, prevalence of occupational accidents was of 17,8%. Occurred with the highest percentage of male workers (26.3%), those with between 19 and 34 years (21.6%). Sharps injuries and falls stood out, his hands and fingers were the body parts most affected. **Conclusion:** None of evaluated factors presented itself meaningfully associated to occupational accidents. The population size may have affected this result. **Descriptors:** Nursing, Occupational health, Occupational accidents, Hospital housekeeping.

### RESUMO

**Objetivo:** Identificar a prevalência e os fatores associados à ocorrência dos acidentes de trabalho com os trabalhadores do serviço hospitalar de limpeza. **Método:** Estudo transversal, envolvendo 157 trabalhadores do serviço hospitalar de limpeza atuantes em um hospital universitário do Rio Grande do Sul, Brasil. A coleta de dados ocorreu em 2013, utilizando-se um formulário para caracterização sociodemográfica, laboral, hábitos, saúde e dos acidentes de trabalho. **Resultados:** No último ano trabalhado, a prevalência de acidentes foi de 17,8%. O maior percentual de acidentes ocorreu com trabalhadores do sexo masculino (26,3%), entre 19 e 34 anos (21,6%). Os acidentes com perfurocortantes e as quedas se destacaram, sendo as mãos e os dedos as partes do corpo mais atingidas. **Conclusão:** Nenhum dos fatores avaliados apresentou-se associado significativamente aos acidentes de trabalho. O número de sujeitos pesquisados pode ter interferido nesse resultado. **Descritores:** Enfermagem, Saúde do trabalhador, Acidentes de trabalho, Serviço hospitalar de limpeza.

### RESUMEN

**Objetivo:** Determinar la prevalencia y los factores asociados a la ocurrencia de accidentes de trabajo con el personal del servicio hospitalario de limpieza. **Método:** Estudio transversal con 157 trabajadores en un hospital universitario del Rio Grande do Sul, Brasil. Los datos fueron recogidos en 2013, mediante un formulario de características sociodemográficas, laborales, hábitos, salud y de los accidentes de trabajo. **Resultados:** En el último año trabajado, la prevalencia de accidentes fue de 17,8%. El mayor porcentaje ocurrió con los trabajadores del sexo masculino (26,3%), los que tienen entre 19 y 34 años (21,6%). Los accidentes con objetos punzantes y las caídas se destacaron, las manos y los dedos fueron las partes del cuerpo más afectadas. **Conclusión:** Ninguno de los factores evaluados se asoció significativamente a los accidentes. El tamaño de la población puede haber afectado en esto resultado. **Descritores:** Enfermagem, Saúde do trabalhador, Acidentes de trabalho, Serviço hospitalar de limpeza.

1 1Nurse. Master in Nursing at the Postgraduate Program of UFSM (PPGEnf/UFSM. Member of the Research Group Work, Health, Education and Nursing (Grupo de Pesquisa Trabalho, Saúde, Educação e Enfermagem- (TSEE). Santa Maria, RS, Brazil. E-mail: marinezdceron@hotmail.com 2 Nurse. PhD in Nursing. Professor at the Department of Nursing and PPGEnf/UFSM. Leader and Researcher at Grupo de Pesquisa TSEE. Research Line Work and Management in Health and Nursing. Santa Maria, RS, Brazil. 3Nurse. PhD in Nursing. Professor at the Department of Nursing and PPGEnf/UFSM. Member of the Research Group Work, Health, Education and Nursing. Santa Maria, RS, Brazil. 4 Nurse. Master in Nursing at the Postgraduate Program of UFSM (PPGEnf/UFSM. Member of the Research Group TSEE. Research Line Work and Management in Health and Nursing. Santa Maria, RS, Brazil. 5 5Nurse. Master in Nursing at the Postgraduate Program of UFSM (PPGEnf/UFSM. Member of the Research Group TSEE. Research Line Work and Management in Health and Nursing. Santa Maria, RS, Brazil. 6 Graduate Nursing student at UFSM. Member of the Research Group TSEE. Holds a Scientific Initiation Scholarship PIBIC/CNPq/UFSM. Research Line Work and Management in Health and Nursing. Santa Maria, RS, Brazil.

## INTRODUCTION

The work environment, as a dynamic part of human life, has been influenced by scientific and technological innovations. However, there is no significant reduction in occupational diseases and workplace accidents. In this context, Occupational Health is concerned with the relationship between work and health, promoting actions aimed at the monitoring and management of occupational hazards.<sup>1</sup>

Workplace accidents are strongly associated with the era of capitalist mass production in the postmodern world. They are defined by the Ministry of Labor as “any incident occurring during work activities likely to cause injuries that can lead to death, loss or temporary or permanent decrease of worker’s productivity.”<sup>2:530</sup>

According to the *o anuário estatístico da Previdência Social* (Statistical Yearbook of Social Security), in Brazil, among the accidents settled in 2012, 705,239 workplace accidents were recorded, resulting in 14,755 cases of permanent disability and 2,731 deaths.<sup>2</sup> Brazil ranks fourth in the world in workplace accidents, after China, USA and Russia.<sup>3</sup> Workplace accidents occur across all occupational sectors.

The present study is focused on workers of a hospital housekeeping staff (HHS). These workers are responsible for the cleaning, disinfection and maintenance of work surfaces and permanent equipment of different areas. They are in charge of the organization of the environment, ensuring that equipment and facilities are in good working condition, especially to prevent the dissemination of microorganisms that may cause infections.<sup>4</sup>

In the hospital environment, the workers of the HHS perform many different tasks, which can make the job stressful and cause potential damage to health, such as: fatigue, physical, mental and emotional disorders, as well as workplace accidents.<sup>5,6</sup> According to Regulation 32 (NR32), workers that perform their activities in hospital settings are daily exposed to occupational hazards, called physical hazards (vibrations, ionizing radiations, cold, heat, humidity, among others), chemical (gases, vapors, dust, substances), biological (viruses, bacteria, fungi, parasites), ergonomic (manual lifting and transporting of load, heavy physical exertion, night shift work, inadequate body posture as a result of the work carried out, among others) and psychological (BRASIL, 1995).<sup>2</sup>

There are few studies on workplace accidents among this population. Most studies report the predominance of sharp injuries, particularly because of improper disposal of needles in the trash or on the ground.<sup>6,7</sup> The present study was developed to shed light on this issue of interest of researchers who believed that occupational health is a branch of nursing with guidelines established by Brazilian Public Unified Health System (SUS), through the *Política Nacional de Segurança e Saúde do Trabalhador*<sup>1</sup> (National Policy on Safety and

Occupational Health). Besides, this study is justified by the fact that the direct or indirect management of hospital housekeeping employees is almost always carried out by nurses.

The focus of this research concerns the factors associated to the occurrence of workplace accidents involving hospital housekeeping employees. The guiding question is: What is the prevalence and the factors associated with the occurrence of workplace accidents with housekeeping employees of a public university hospital of Rio Grande do Sul?

The present study aimed primarily to identify the prevalence and the factors associated to the occurrence of workplace accidents involving housekeeping employees of a university hospital. Secondly, it aimed to describe the socio-demographic and occupational profiles, habits and health aspects of the workers, as well as to characterize the occupational accidents according to their location, time of occurrence, shift, and type of injury.

## METHOD

Epidemiological cross-sectional study with 157 outsourced workers of the housekeeping staff of a university hospital. It is a large public teaching hospital located in the central-west region of the State of Rio Grande do Sul, Brazil, considered a reference in health in the region. The hospital has 320 beds and a physical area of 30 thousand m<sup>2</sup>.

The inclusion criteria were, as follows: outsourced hospital housekeeping employees working in the hospital studied, during the period stipulated for data collection. Workers who were away from work (on a leave) for any reason were excluded.

Data collection was performed between March and June 2013, by research assistants (nursing students, nurses and master students), previously trained by the coordinator of the project. The research involved the use of an instrument containing socio-demographic, economic, occupational, health, habits and health data, which was completed by the researchers based on the answers of the participants, during working hours, in a separate room. It should be stressed that one instrument was handed to the researcher and another one, of equal content, was handed to the research assistant who read the answers and marked the answers provided by the participant.

The data was organized with Epi-info® software, version 6.4, using double data entry. After correction of errors and inconsistencies, data analysis was carried out with the PASW Statistics® (*Predictive Analytics Software*, of SPSS Inc., Chicago, USA) version 18.0 for Windows.

Analysis of socio-demographic variables concerned age, gender, education, income and number of children. The labor variables analyzed were work sector and shift, another job, overtime, weekly workload in the study hospital, weekly workload in the other job and length of time working in the function.

Regarding habits and health status, the investigation included use of tobacco, suspected alcohol addiction, drug addiction, use of medication, need for medical care,



psychological counseling and hours of sleep per night. Analysis of workplace accidents involved the investigation of workplace accidents over the past year, type of accident, causative agent, affected body area, time elapsed during the daily working hours until the workplace accident, use of Personal Protective Equipment (PPE), need to be away from work and time away from work.

Descriptive analysis of variables was performed. For the categorical variables, absolute (N) and relative (%) frequencies were calculated, and for the quantitative variables, mean, standard deviation, median, minimum and maximum values were calculated according to data normal distribution. Bivariate analysis was performed to test the association between workplace accidents and the other variables, using Chi-square Test or Fisher's Exact Test, at confidence levels of 95% ( $p < 0.05$ ).

This study is part of the matrix project called "*Avaliação das condições de trabalho e saúde dos trabalhadores do serviço hospitalar de limpeza*" (Assessment of working and health conditions of hospital housekeeping workers of a university hospital). The referred project is linked to the Research Group Work, Health, Education and Nursing of the Department of Nursing of *Universidade Federal de Santa Maria*, in the research line Work and Management in Nursing and Health. It was approved by the Research Ethics Committee of the University of Affiliation of the authors, under CAAE no 3106313.1.0000.5346, in February 26, 2013.

The guidelines and regulations of research with humans were observed (Resolution no 466, of December 12, 2012).<sup>8</sup> Those who agreed to participate in the study signed the Free Informed Consent (TCLE), in two copies, one retained by the participant and the other by the researchers.

## RESULTS AND DISCUSSION

Of the total number (161) of workers, two (1.2%) were excluded because they were on sick leave during the data collection period. The eligible population was composed of 159 workers (92.4%). Of these, two (1.3%) refused to participate in the study, totaling 157 (98.7%) participants.

Among these workers, 28 (17.8%) had suffered a workplace injury in the previous year, and seven of them (25%) had suffered injuries on their way to work.

Tables 1 and 2 show the characterization of the workers and workplace accidents.

**Table 1.** Distribution of hospital housekeeping workers according to data on socio-demographic and occupational profiles, habits, health and workplace accidents. Santa Maria/RS, Brazil. March/June 2013

Variables	N	%	Workplace accidents				P
			NO		YES		
			N	%	N	%	
Gender							0.303*
Male	19	12.1	14	73.7	5	26.3	
Female	138	87.9	115	83.3	23	16.7	
Age range							0.698*
19-34 years	51	32.5	40	78.4	11	21.6	
35-44 years	50	31.8	42	84	8	16	
45-60 years	56	35.7	47	83.9	9	16.1	
Schooling							0.372*
Primary education	66	42.0	51	77.3	15	22.7	
Secondary education	86	54.8	74	86	12	14	
Higher education	5	3.2	4	80	1	20	
Household income per head***							0.122*
< 1 minimum wage	103	65.6	81	78.6	22	21.4	
1 to 2 minimum wages	54	34.4	47	88.7	6	11.3	
Smoking							0.480*
No, I have never smoked.	79	50.3	66	83.5	13	16.5	
Yes, I smoke.	51	32.5	43	84.3	8	15.7	
I have smoked, but I quit.	27	17.2	20	74.1	7	25.9	
Alcohol							0.508**
No	140	89.2	116	82.9	24	17.1	
Yes	17	10.8	13	76.5	4	23.5	
Use of medicines							0.760*
No	77	49.1	64	83.1	13	16.9	
Yes	80	50.9	65	81.3	15	18.8	
Medical care							0.273*
No	65	41.4	56	86.3	9	13.8	
Yes	92	58.6	73	79.3	19	13.7	
Psychological counseling							0.562**
No	147	93.6	121	82.3	26	17.7	
Yes	10	6.4	8	80.0	2	20.0	
Function							0.140*
Cleaning Worker	103	65.6	88	85.4	15	14.6	
Cleaning Helper for cleaning materials	54	34.4	41	75.9	13	24.1	
Work shift							0.730*
Day	127	80.9	105	82.7	22	17.3	
Night	30	19.1	24	80	6	20	
Receives in-house training							0.249*
No/Sometimes	44	28.0	39	88.6	5	11.4	
Yes	113	72.0	90	79.6	23	20.4	

\* Pearson’s Chi-square test. \*\* Fisher’s Exact test. \*\*\* National Minimum Wage R\$ 678,00

Most hospital housekeeping workers were women (87.9%), with an average age of 39.9 years (SD=9.8), self-declared white (63.7%), have completed secondary education (38.9%), married or lived with a partner (64.3%), with one child (28%), and up to seven economically dependent members and two children under 6 years (SD=0.6). a higher percentage (65.6%) of the workers had a household income per head lower than one national minimum wage (average R\$ 584,43±R\$322,81; minimum R\$ 135,00 and maximum R\$ 2.000,00). No statistically significant association was found between socio-demographic and economic characteristics of the workers and the occurrence of workplace accident during the assessed period.

Regarding habits and health aspects, 51 (32.5%) of the workers reported being smokers. The average daily cigarettes smoked was 10.5 (SD=10.7), with a maximum of 60 cigarettes. When asked about the consumption of alcoholic beverages using the CAGE

instrument (Cut Down, Annoyed, Guilty, Eye-Opener), N=17 (10.8%) said that they drank some kind of alcoholic beverage. Of these, six (3.8%) were classified as under suspicion of alcoholism.<sup>9</sup> Nevertheless, the use of tobacco or alcohol by the referred workers was not found to be significantly associated to the occurrence of workplace accidents.

Asked about the use of medicines, 79 (50.3%) participants reported using some type of medication. Of these, 75 (47.8%) used medicines according to medical prescription and four (2.5%) used them on their own. Among the medications used, the group of contraceptives in 34 (43%), followed by the group of antidepressants in 13 (16.5%) and antihypertensive agents in 10 (12.7%) participants were the most commonly reported drugs. In this aspect there was also no significant correlation with workplace accidents ( $p=0.760$ ).

Regarding the need for medical or psychological care over the previous year, 92 (58.6%) workers said they have required at least one medical appointment and 10 (6.4%) said they were currently receiving psychological counseling or had such counseling before. Both cases were not related to workplace accidents ( $p>0.05$ ). The number of hours of sleep per night of the workers was also investigated. The average hours of sleep per night of those who suffered workplace accidents was 7.3 (SD=1.63) compared to 7.1 hours (SD=1.61) of those who did not have workplace accidents ( $p=0.509$ ).

The assessment of labor characteristics did not show any statistically significant association between them and the occurrence of workplace accident in the assessed period ( $p>0.05$ ). Regarding the function performed by the workers, most were cleaning workers: 103 (65.5%) of the workers and 54 (34.4%) were cleaning helpers for cleaning materials.

Concerning the site of the work, most workers performed their duties in administrative areas, outpatient units, laboratories and hemodynamic equipment: 31 (14.6%). The other hospital housekeeping workers performed their activities in other sectors such as nutrition, laundry, pathology, warehouse, pharmacy, maintenance and disinfection: 24 (N=24; 15.3%); First Aid: 17 (N=17; 10.8%); Intensive Care Unit and Surgical Unit: 11 (7.0%) workers. Asked whether they had worked in other hospital sectors, 99 (63%) answered yes.

The average length of time working in the function and in the study hospital was 24.5 months (SD=39.7) and 32.5 months (SD=48.9), respectively. Most 137 (80.9%) hospital housekeeping workers performed their duties in the day shift, working 6 to 12 hours and 44 hours per week. The average length of time working in the shift was 19.5 months (SD=31.1).

Regarding the number of workers in the working timetable: 114 (72.6%) of the participants said this number was adequate. Of the participants, 18 (11.5%) had another job with a weekly workload of 3 to 36 hours for 1 up to 20 years. The average number of hours worked in the other job was 10.8 (SD=9.4) and the average length of time working in the other job was 46.4 months (SD=64.5). Regarding overtime hours, 51 (32.5%) participants reported working 3 to 36 monthly overtime hours. The average overtime hours/month was 13.4 (SD=9.5). Regarding satisfaction with remuneration, it was found that 65.9% of the respondents (SD=22.6) were satisfied.

Also, 13 (72.0%) of the participants reported receiving in-house training on workplace accidents. The main sites of occurrence of workplace accidents include Outpatient units, Bone Marrow Transplant unit, with 50% (N=3); Surgical Center, Anesthetic Recovery Room,



Material and Sterilization Center, with 42.9% (N=3); Clinical Surgery Unit, with 36.4% (N=4); Obstetric Center, with 33.3% (N=2), X-ray/CT scanning/Radiotherapy, with 33.3% (N=1).

**Table 2.** Description of workplace accidents occurred in the previous year involving hospital housekeeping workers. Santa Maria/RS, March/June 2013

Variables	N	%
<b>Hours worked until the workplace accident</b>		
1 and 2 hours	8	28.6
3 and 4 hours	5	17.9
5 and 6 hours	5	17.9
7 and 8 hours	5	17.9
≥ 9 hours	5	17.9
<b>Injury caused by the workplace accident</b>		
Sharp injury	8	28.6
Fall	8	28.6
Injury or muscle strain	5	17.9
Burns, e.g. caused by electricity, fire, chemicals	2	7.1
Cut/scratches/abrasions	1	3.6
<b>Circumstances in which the workplace injuries occurred</b>		
Others (twisting of the limbs, chemical spills, back injury)	13	46.4
Waste handling	7	25.0
Handling of working tools	7	25.0
Clothes handling	1	3.6
<b>Part of the body affected by the workplace accident</b>		
Hands/fingers	9	32.1
Upper limbs except the hands	6	21.4
Feet	5	17.9
Chest/back	3	10.7
Eyes	2	7.1
Face/head except the eyes	2	7.1
Lower limbs except the feet	1	3.6

The highest percentage of workplace accidents (N=8; 28.6%) occurred 1-2 hours after the beginning of the working period. Also, 20 (71.4%) of the workers who suffered workplace accidents required medical care, and 15 (53.6%) workers sought the emergency care service of the hospital.

Regarding the causative agent, sharp injuries and falls were the predominant causes of workplace accidents, with eight (28.6%) cases each. The hands and fingers were the body parts most affected by workplace accidents (N=9; 32.1%), followed by the upper limbs (forearms and arms) (N=6; 21.4%) and the feet (N=5; 17.9%).

Besides, six (21.4%) or the workers said they ignored the cause of the accident, and the same percentage reported that the cause of the accident was improper disposal of materials by other professionals. Regarding the circumstance of occurrence of the accident, the handling of waste and working tools was the cause of seven (25%) injuries each. Other circumstances (situations) such as fall down the stairs, fall while walking inside the bus, twisting of the foot, lamp falling on the head, spills of chemicals (such as alcohol and hypochlorite), back injury caused by the handling of heavy objects, traffic accidents and accidents caused by intravenous infusion pump accounted for 13 (46.4%) of the workplace accidents.

It should be stressed that four (14.3%) accidents were not notified to the Personnel Department of the researched institution. Asked about the use of Personal Protective Equipment (PPE), 17 (68%) individuals said they were using at least one type of PPE when the accident occurred. Of these protective equipment, gloves were the most commonly used and



19 (67.9%) workers said they always wore gloves; 11 (39.2%) said that in addition to wearing protective gloves, they also wore masks and aprons; eight (28.5%) also used glasses, and four (14.2%) reported also the use of caps and boots. Regarding training events, 21 (75.0%) workers reported having received in-house training over the past 6 months.

Asked about sequels or limitations caused by the accident, 21 (75%) workers reported having felt pain at the moment/during the injury; 10 (35.8%) had limitations in their motion, six (21.4%) had swelling and bruising, and one worker (3.5%) reported loss of the function of the affected body part. Besides, 11 (39.3%) workers had to be absent from work because of the workplace accident for more than one day. The length of time away from work ranged between 1 to 120 days (7.3 days  $\pm$  23.3).

The average length of time of use of medication after the accident was 15.9 days (SD=21.5). The most frequently mentioned medications were anti-inflammatory drugs (46.7%) and painkillers (20%). Regarding vaccination against tetanus and hepatitis B, 9.6% (N=15) of the participants said they had incomplete vaccination schedules.

Concerning the analysis of the variables age, gender, schooling and income, the findings of the present study corroborate those from other studies conducted with hospital housekeeping workers.<sup>6,10-11</sup> The evidence indicate that most workers of the hospital housekeeping staff were women, with low income and schooling.<sup>6,10-11</sup>

This predominance of female workers is partly explained by the fact that activities like sweeping and cleaning have always been considered the woman's responsibility, that is, domestic chores performed by women<sup>11</sup>. Regarding schooling, most participants had completed secondary education. However, 27.4% (N=43) workers had not completed primary education. Therefore, the low schooling of the participants led us to seek these low-level occupations, which are low paid and require little training.

Regarding income, it is precisely because this group of workers is low paid that they had to seek other jobs and work overtime hours. Also, the type of activity performed involving exposure to chemical, biological, psychical and ergonomic risks, may contribute to physical and mental strain, exposing these workers to workplace accidents. The prevalence of workplace accidents among the hospital housekeeping workers of this study was 17.8%. This percentage is higher than the one obtained in another study with workers responsible for general services in a hospital, including those responsible for cleaning, which corresponded to 3.3% of the workplace accidents analyzed.<sup>12</sup>

No statistically significant association with the occurrence of workplace accidents was found in the assessment of the habits and health status of the hospital housekeeping workers. However, the use of alcohol and medicines should be considered with caution, since they may cause side effects such as sleepiness and slowness, suggesting they would be more likely to suffer accident or injury in the workplace.

Regarding the occupational category, a survey conducted in Canada, in 2005, showed that hospital housekeeping workers are twice or three times more likely to suffer occupational injuries than other workers.<sup>13</sup>

The highest frequency of workplace accidents occurred in the night shift (N=6; 20%), between 1 and 2 hours after the beginning of their working day (N=8; 28.6%). Corroborating this finding, other studies involving health staff members indicate that the highest frequency

of workplace accidents in hospital settings occur in the early hours of the morning shift. However, most studies concern nursing workers who perform most of their activities in the morning shift.<sup>14-17</sup>

Multiple factors can be involved in workplace accidents, and a set of data should be taken into consideration. This study did not show a significant association between the assessed variables and the occurrence of workplace accidents. Nevertheless, the following statements made by the participants deserve attention: 43 (27.4%) hospital housekeeping workers reported that the number of workers in the working timetables was insufficient, 18 (11.5%) said they had another job and 51 (32.5%) said they worked overtime hours. The average hours of sleep per night of the workers who suffered workplace accidents was 7.3 (SD=1.63). However, it should be mentioned that night shift workers usually work in intercalated days, and daytime rest may impact their bodies, including their ability to concentrate, contributing to the occurrence of workplace accidents.<sup>18</sup>

At the moment of the accident, the use of PPE was reported by 68% of the workers. However, 32% said they were not using the appropriate PPE at the moment of the accident. Gloves were the most commonly used PPE, followed by mask, apron and glasses. Also, 72% (N=113) said they received training on workplace accidents over the past six months; However, most workplace accidents occurred with workers who had been previously trained (20.4%). This finding is significant and lead us to reflect on the level of understanding of the training by these workers, as well as on the methods used.

The training activities are often focused on little participative methodological strategies or strategies that use terms that are not understood by hospital housekeeping workers. Obviously, the use of inappropriate methodological strategies may contribute to the lack of adherence to safety practices by workers, even by those who received guidance on the issue. Consequently, these practices are not applied to their daily work activities.

Therefore, the growing use of preventive strategies is essential to prevent or avoid workplace accidents. One aspect that should be stressed in this regard is the use of PPE, addressed by Regulation 6 (NR 6). According to these rules, each institution should provide the necessary personal protective equipment to their workers, as well as periodic training on the importance of using such equipment.<sup>19</sup> Besides, according to Regulation 5 (NR 5), the institutions must establish and maintain a *Comissão Interna de Prevenção dos Acidentes de Trabalho- CIPA* (Internal Committee for Accident Prevention) to assess working conditions, the supply and use of PPE, promote events and training activities. The CIPA is supposed to be a supervisory body of an organization.<sup>19-20</sup>

Regarding the type of injury suffered in the workplace accident and the affected body part, sharp injuries and falls were found to be prevalent in this study, and hands and fingers were the most affected parts. Similar data were obtained in national and international studies.<sup>17,21-24</sup>

Some predisposing factors for the occurrence of workplace accidents were observed in this study, such as inappropriate disposal of materials by other professionals as the causative agent of 21.4% (N=6) of the accidents. Other studies also demonstrated that some accidents suffered by hospital housekeeping workers may be caused by the actions of other

health professionals who facilitate the occurrence of accidents when they inappropriately pack or discard materials used in hospital procedures.<sup>14,15,21,25</sup>

Among the situations of workplace accidents examined in this study the most frequent were handling of solid waste and handling of working tools, causing cutting or piercing by needles or surgical instruments. Of the seven sharp injuries caused by unknown origin, the use of antiretrovirals was indicated in two cases. However, one worker refused to take this medication.

It is known that among the risks of accident with potentially contaminated materials in hospitals, the most serious is contamination with Hepatitis B (HBV) virus, Hepatitis C (HCV) virus and Human Immunodeficiency Virus (HIV). Nevertheless, sharp injuries are responsible for the transmission of 20 different pathogens such as herpes, leptospirosis, syphilis, tuberculosis, ebola, gonorrhea, cryptococcosis, diphtheria, malaria, among others.<sup>26</sup> Thus, permanent education in health may help reduce the risk of trivialization or the risk.

This strategy is further enhanced in this study in what concerns the vaccination against tetanus and hepatitis B, 9.6% (N=15) of the participants said they had incomplete vaccination schedules. A survey with health professionals of the city of Santa Rosa/RS, in 2008 showed that, of the 130 professionals who had suffered workplace accidents in the city, 19 were not vaccinated against hepatitis B. Some reasons for non-vaccination were: not finding vaccination necessary, forgetfulness, or no indication.<sup>27</sup>

After the occurrence of an accident, some attitudes should be adopted to prevent infections, including the immediate examination of the victim, chemoprophylaxis, when required, counseling and periodical monitoring of the injured worker.<sup>28</sup> Thus, chemoprophylaxis, despite reducing the risk of infection with viruses HIV and HBV after occupational exposure, does not prevent infection by HCV.<sup>27, 29</sup>

According to the *Centers for Disease Control and Prevention* (CDC), in the United States, between 1981 and 2010, there were 57 documented cases of infection by HIV, among health professionals following occupational exposure. However, since notification was voluntary (not compulsory), these figures must be considered with caution.<sup>30</sup> In Brazil, a study published in 2006, through systematic literature review in the 1981-2004 period, found four documented cases of occupational infection by HIV among health workers exposed to blood and body fluids.<sup>31</sup>

In the Outpatient units, Surgical Center and Clinical Surgery Unit, the percentages of workplace accidents were higher. This is explained by the high flow of patients and procedures that involve sharp tools in these places. Similar findings were obtained in studies with hospitals in other Brazilian states.<sup>17, 22</sup> In the USA, epidemiological data of the surveillance system for workplace accidents with biological materials indicating that the accidents of workers of the support team, as well as of the hospital housekeeping staff, occur in inpatient units, intensive care units (ICU) and surgical center often before and during the disposal of materials.<sup>26</sup>

The length of time away from work in this study was up to 120 days, causing losses to both the worker and the employer. Health workers are potentially exposed to accidents with biological material, which is a matter of concern for managers and workers because of their frequency, the degree of stress and the costs generated.<sup>32</sup>



It is important to stress that under-reporting of workplace accidents was another evidence of this study (14.3% of the accidents). According to Ordinance no.104, of January 25, 2011, all workplace accidents are of compulsory notification.<sup>33</sup> Moreover, all occurrences must be reported to the Social Security by means of Workplace Accident Communication (WAC).

The WAC of the Brazilian Social Security System (INSS) and death certificates are the main sources of information on workplace accidents in Brazil.<sup>14</sup> However, these records are still under-reported. A study aimed to determine the incidence of workplace accidents caused by exposure to biological materials, post-accident conducts and determining demographic factors in a pre-hospital care multidisciplinary team found that notification by WAC was made in 18.4% of the cases.<sup>15</sup> If workplace accidents caused by exposure to biological material are under-reported, this may also happen with other types of accident.

## CONCLUSION

The decrease in the number of workplace accidents in hospitals remains a challenge since most workers are exposed to occupational hazards, which is the case of hospital housekeeping workers. The prevalence of workplace accidents in the assessed period was 17.8%. Although this study has been unable to identify factors significantly associated with workplace accidents, the percentages reported here might be useful to workers and managers, especially when they can be changed by means of permanent actions of health education.

The present findings may highlight some elements that deserve greater attention in the educational actions implemented with the group of workers of the institution that participated in this study. Regarding academic needs, these findings may provide future professionals with more insight on the factors that interfere in workers' overall health, including work-related accidents.

The limitations of this study include: workers away from work because of health problems were not interviewed (healthy worker bias), the question on the occurrence of workplace accidents was based on recollections (memory bias) and population size.

## REFERENCES

1. Ministério da Previdência Social (Br). Política Nacional de Segurança e Saúde do Trabalhador. [Internet]. Brasília, 2004 [cited 2010 Oct. 9]. Available from: [http://www.previdenciasocial.gov.br/arquivos/office/3\\_081014-105206-701.pdf](http://www.previdenciasocial.gov.br/arquivos/office/3_081014-105206-701.pdf).
2. Ministério da Saúde (Br). Anuário Estatístico da Previdência Social. Acidentes de trabalho. [Internet]. Brasília, 2012 [cited 2013 Apr. 10]; 19:1-868-350. Available from: <http://www.previdencia.gov.br/estatisticas/aeps-2012>.
3. Jornal Diário de Pernambuco. Matéria=20120427094239. [Internet]. Pernambuco, 2012 [cited 2012 Aug. 16]. Available from: <http://www.old.diariodepernambuco.com.br/nota.asp>.
4. Agência Nacional de Vigilância Sanitária (Br). Segurança do paciente em serviços de saúde. Limpeza e desinfecção de superfícies. Brasília: ANVISA, 2010.
5. Valente GSC, Falcão PM, Barbosa AQ, Rosa AGMR, Santos WA, Barbosa VQ. O enfermeiro na educação em saúde ao trabalhador da limpeza no ambiente hospitalar. R. pesq.: cuid. fundam. 2011; 3(1):1702- 10.
6. Câmara PF, Lira C, Junior BJS, Villela TAS, Hinrichsen SL. Investigação de acidentes biológicos entre profissionais da equipe multidisciplinar de um hospital. Rev Enferm UERJ, Rio de Janeiro, 2011; 19(4): 583-6.
7. Paiva MHRS, Oliveira AC. Fatores determinantes e condutas pós-acidente com material biológico entre profissionais de atendimento pré-hospitalar. Ver Bras Enf, Brasília, 2011; 64(2): 268-73.
8. Ministério da Saúde (Br). Conselho Nacional de Saúde. Diretrizes e normas regulamentadoras de pesquisa em seres humanos. Resolução N° 466/2012, de dezembro de 2012. Brasília: CNS, 2013.
9. Castells MA, Furlaneto LM. Validity of the CAGE questionnaire for screening alcohol dependent inpatients on hospital wards. Rev Bras Psiquiatria, 2005; 27(1): 54-7.
10. Sznclwar LI, Lancman S, Wu MJ, Alvarino E, Santos M. Análise do trabalho e serviço de limpeza hospitalar: contribuições da ergonomia e da psicodinâmica do trabalho. Rev Produção [Internet]. 2004 [cited 2013 Sept. 6]; 4(3): 045-057. Available from: <http://www.nescon.medicina.ufmg.br/biblioteca/imagem/0374.pdf>.
11. Silva LG, Haddad MCL, Domansky RC. Capacidade para o trabalho entre trabalhadores de higiene e limpeza de um hospital universitário público. Rev Eletr Enf [Internet]. 2010 [cited 2013 Aug. 13]; 12(1):158-63. Available from: <http://www.fen.ufg.br/revista/v12/n1/v12n1a19.htm>.
12. Oliveira AC, Gonçalves JÁ. Acidente ocupacional por material perfurocortante entre profissionais de saúde de um centro cirúrgico. Rev Esc Enferm USP, 2010; 44(2): 482-7.
13. Alamgir H, Yu S. Epidemiology of occupational injury among cleaners in the health care sector. Occup Med [Internet]. Lond, 2008 [cited 2013 Aug. 20]; 58(6): 393-99. Available from: <http://www.occmed.oxfordjournals.org>.
14. Kirchhof ALC, Magnago TSBS, Urbanetto JS, Cera MC, Marques CS, Capellari C. Os acidentes de trabalho atendidos em pronto atendimento de hospital universitário. Esc Anna Nery Rev Enferm, Rio de Janeiro. 2003; 7(3):361-8.

15. Oliveira AC, Lopes ACS, Paiva MHRS. Acidentes ocupacionais por exposição a material biológico entre a equipe multiprofissional do atendimento pré-hospitalar. *Rev Esc Enferm USP*. 2009; 43(3):677-83.
16. Ruas EFG, Santos L, Barbosa DA, Belasco AGS, Bettencourt ARC. Acidentes ocupacionais com materiais perfurocortantes em hospitais de Montes Claros- MG. *Rev Min Enferm*, 2012; 16(3):437-43.
17. Pimenta FR, Ferreira MD, Gir E, Hayashida M, Canini SRSMS. Atendimento e seguimento clínico especializado de profissionais de enfermagem acidentado com material biológico. *Rev Esc Enferm USP*, 2013; 47(1): 198-204.
18. Rosa PLFS, Fisher FM, Borges FNS, Soares NS, Rotemberg L. Percepção da duração do sono e da fadiga entre trabalhadores de enfermagem. *Rev Enferm UERJ*, Rio de Janeiro. 2007; 15(1):100-6.
19. Ministério do Trabalho e Emprego (Br). Norma Regulamentadora 05 e 06. Comissão Interna de Prevenção de Acidentes. [Internet]. Brasília, 1990. [cited 2012 Oct. 23]. Available from: <http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm>.
20. Ministério do Trabalho e Emprego (Br). Norma Regulamentadora 32. Segurança no trabalho em serviços de saúde. [Internet] Brasília, 2011[cited 2012 Oct. 23]. Available from: <http://portal.mte.gov.br/legislacao/normas-regulamentadoras-1.htm>.
21. Oliveira CA, Diaz MEP, Toledo AD. Acidentes de trabalho com materiais perfurocortantes entre a equipe multiprofissional de uma unidade de emergência. *Cienc Cuid Saude*, 2010; 9(2):341-49.
22. Salles CLS, Silveira A. acidentes de trabalho e o plano de gerenciamento de resíduos de serviços de saúde. *Cienc Cuid Saude*, 2009; 8(4):652-59.
23. Jaramillo RM, Maldonado MB, Guerra DD, Tetamantti D. Accidentes laborales con exposición a material biológico y grupo más sensible a los mismos(ALEMB), hospitales Luis Vernaza, maternidade Enrique C. Sotomayor, maternidade Mariana de Jesús, del niño Francisco de Ycaza bustamante y Äbel Gilberto Potón de Guayaquil. *Rev Medicina*, 2010; 16(1):18-24.
24. Errico DA, Punnett L, Cifuentes M, Boyer J, Tessler J, Gore R et al. Hospital injury rates in relation to socioeconomic status and working conditions. *Occup Environ Med*, 2007; 64(5):325-33.
25. Murofusa N T, Marziale, M H P, Gemelli, L.M.G. Acidente com material biológico em hospital universitário do oeste do Paraná. *Rev Gaúcha Enferm*. 2005; 26(2): 168-79.
26. Rapparini C, Reinhardt EL. Manual de implementação do Programa de Prevenção de Acidentes com Materiais perfurocortantes em Serviços de Saúde. São Paulo, Fundacentro, 2010. Adaptado de Workbook for designing, implementing, and evaluating a sharps injury prevention program of Centers for Disease Control and Prevention (CDC). [Internet], 2008. [cited 2013 July 3]. Available from: [Http://www.riscobiologico.org&www.fundacentro.gov.br](http://www.riscobiologico.org&www.fundacentro.gov.br).
27. Rossato EM, Ferreira J. Acidentes com perfurocortantes e cobertura vacinal contra hepatite B entre trabalhadores da Saúde no Município de Santa Rosa, Estado do Rio Grande do Sul, Brasil, 2008. *Epidemiol Serv Saúde*, 2012; 21(3):487-96.
28. Martins AMEBL, Pereira R D, Ferreira RC. A adesão a protocolo pós-exposição ocupacional de acidentes entre cirurgiões dentistas. *Rev Saúde Pública*, 2010; 44(3):528-40.
29. Almeida CAF, Benatti MCC. Exposições ocupacionais por fluidos corpóreos entre trabalhadores da saúde e sua adesão à quimioprofilaxia. *Rev Esc Enferm USP*, São Paulo. 2007; 41(1):120-6.
30. CDC. Centers for Disease Control and Prevention. 1600 Clifton Rd Atlanta, GA 30333. [Internet]. EUA, 2013 [cited 2013 Aug. 14]. Available from: <http://www.cdc.gov/HAI/organisms/hiv/Surveillance-occupationally-Acquired-HIV>.



31. Rapparini CO. Occupational HIV infection among health care workers exposed to blood and body fluids in Brasil. Am J Infect Control. [Internet] 2006 [cited 2013 Aug. 14]; 34(4): 237-40. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/16679183>.
32. Dalarosa MG, Lautert L. Acidente com material biológico no trabalhador de enfermagem em um hospital de ensino: estudo caso-controle. Rev Gaúcha Enferm, 2009; 30(1):19-26.
33. Ministério da Saúde(Br). Portaria nº 140 de 25 de janeiro de 2011: define terminologias adotadas em legislação nacional sobre agravos de notificação compulsória. Disponível em: [www.bvsms.saude.gov.br/bvs/saudelegisl./gm](http://www.bvsms.saude.gov.br/bvs/saudelegisl./gm). Acesso em 19/12/2013.



Received on: 17/06/2014  
Required for review: 03/02/2015  
Approved on: 25/05/2015  
Published on: 01/10/2015

Contact of the corresponding author:  
Tânia Solange Bosi de Souza Magnago.  
Universidade Federal de Santa Maria, Centro de Ciências da Saúde.  
Prédio 26. Avenida Roraima, 1000.  
CEP: 97105-900